The sinews of government: a comparison between De Nederlandsche Bank and the Bank of England, (1864-1887)

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Abstract

This thesis makes a comparison between the design, functions and operations of De Nederlandsche Bank and the Bank of England between the Bank charter of 1864 until the charter of 1887. This period constitutes the transitional period between both De Nederlandsche Bank's and the Bank of England's initial constitution of lender of last resort and a de facto monopolist issuer of banknotes, to a reserve bank under the Gold Standard. It researches the discounting function of both central banks and their money market structure and analyzes data on their lending and discount policies. It concludes that changes in the structures of the Dutch and English money markets between 1864 and 1887 pushed the central banks into a different position in the discount function of those markets. My results suggest that the institutional equilibria of private finance can exercise a much more profound influence on central banking operations than previously assumed.

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List of Abbreviations

De Nederlandsche Bank as ‘DNB’

The Bank of England as ‘the BoE’

De Nederlandsche Bank and the Bank of England as ‘the Bank’

I. Introduction

During crises, policymakers tend to look to past events for guidance.[1] As Lord Mervyn King, the former Bank of England Governor said in 2016: 'During the crisis [2007-09], I found that the study of earlier periods was more illuminating than any amount of econometric modelling.'[2] Studying the history of central banks sheds a light on a core function of the modern state: to exercise the public task of monetary stability and the private function of market liquidity through the government's granting of general competence by charter. My perception that private and public finance can work together in tandem despite their diverting interests, such as profit over monetary stability, led me to research the role of private finance on the development of central banks.

Central banks developed throughout history trying to find centralized solutions to domestic financial issues, the most prominent being illiquidity in the money market and monetary instability, by emulating successful examples of central banks abroad and adapting them to domestic circumstances. By comparing these central banks historians can create a better understanding of the relationship between the demands of private finance and the competences of public finance institutions. My research will answer the following question: to what degree have discount houses and commercial banks on the private money market in Great-Britain and the Netherlands contributed to the changing structure of their central banks between the transitional phase of 1864 and 1887? During this period the central banks retreated from the money market in favour of the commercial banks. The object of the research this thesis presents is to provide insight into why central banks developed differently across countries and how the functional relationship between public and private institutions in the money market is an explanatory factor.

Most twentieth and twentieth first-century authors on DNB have based their research on De Jong's monumental work on the history of DNB which was first published in 1930. It is a broad historical narrative written for and sponsored by the Bank. It offers a comprehensive

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[1] M. Anson, D. Bholat, M. Kang, R. Thomas*, The Bank of England as lender of last resort: new historical evidence from daily transactional data*. Staff Working Paper No. 691 (2017), p. 2.
[2] M. King, *The End of Alchemy: Money, Banking and the Future of the Global Economy* (London, 2016), p. 90.

account of DNB that has yielded much valuable statistical information on discounting[3], bank rates, reserves and monetary policy to historians since its publication, reproducing sources from the DNB archive in The Hague.[4] Andréadès and Clapham produced similar works on the BoE, respectively in 1906 and 1944.[5] However, these works generally lack critical analysis of the Bank's mechanics in action and the *raison d'être* of a central bank in a modern financial system.[6] That is why later authors have analyzed the mechanics of the central banks more in-depth. Research by Sayers (1976), Goodhart (1988) and Capie (2002) on the relationship between the BoE and the English money market analyzed if the BoE would lend to anyone with good collateral, which it did.[7] *Jonker* (1996) was the only author to give DNB's development in the first half of the nineteenth century significant attention while Kymmel (1992) and Wijtvliet (1995) have analyzed the transformation of DNB from a maximiser of profit to a banker's bank in the second half. Their works fit within the overarching historical question of why the Netherlands had such late industrialization. Jonker demonstrated in his work that the premodern financial system used in the Netherlands, the on-call money market (the prolongation system), was effective in channelling savings into investments.[8]

Ugolini and Flandreau provided new insights into the way central banks developed their lender of last resort[9] policies through data on bank rates. They argue that previous authors underestimated the ability of the BoE to divert from established policy, for instance, to screen customers instead of giving credit 'anonymously'.[10] Ugolini in more recent works shifted from

[3] Discounting is a financial mechanism in which the debtor can buy the right to delay payments to a creditor. The discount is the difference in between the present amount and the future amount to be paid. The discount rate is the share of the present amount that has to be paid for the delay.

[4] De Jong, A.M. *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

[5] A. Andréadès, *History of the Bank of England: 1640 to 1903*, 4th edn (London, 1966) and J. H. Clapham, *The Bank of England, A History*, 2 vols. (Cambridge, 1944).

[6] R. A. Uittenbogaard, 'Evolution of central banking? De Nederlandsche Bank 1814-1852', Ph.D. thesis Universiteit Utrecht (2015), p. 2.

[7] R.S. Sayers, *The Bank of England, 1891–1944* (Cambridge, 1976); C.A.E. Goodhart, *The evolution of central banks* (Cambridge, 1988) and F. Capie, F., 'The emergence of the Bank of England as a mature central bank' In D. Winch and P. K. O'Brien eds., *The political economy of British historical experience, 1688–1914* (Oxford, 2002).

[8] J.P.B. Jonker, *Merchants, bankers, middlemen, the Amsterdam money market during the first half of the nineteenth century* (Amsterdam 1996), K. Kymmell, *Geschiedenis van de algemene banken in Nederland 1860-1914* (4 vols, Amsterdam, 1992); C.A.M. Wijtvliet, *Expansie en dynamiek. De ontwikkeling van het Nederlandse handelsbankwezen, 1860-1914* (Amsterdam, 1993).

[9] A lender of last resort is an institution, usually a country's central bank, that offers credit to banks that during crises when they are experiencing financial difficulty or are considered highly risky or near collapse.

[10] J.H. Wood 'Bagehot's lender of last resort: A hollow hallowed tradition' *The Independent Review* 7:3 (2003), pp. 1-9.

an institutional emphasis to a functionalist one. He compared the emergence of various central banking systems and concluded that different paths towards monetary and financial stability have been influenced by domestic political factors.[11] Parallel to this research is the work of Uittenbogaard (2015) on the evolution of central banks with a focus on DNB, which he compares extensively to the BoE's development in the first half of the nineteenth century.[12] My research will contribute to the existing literature in two ways. First, it will provide additional information on cross-national differences in central banking through research on the DNB and BoE statistical data. Second, it will demonstrate how private finance influenced central banks in the transitional phase of 1864-1887. Previous research on DNB and the BoE has not yielded an in-depth analysis of the role that private finance systems played in the unique constitutions of DNB and the BoE.

The research in this thesis will be descriptive using the data provided by *De Jong* on DNB and the historical dataset of the BoE provided by the Bank of England staff working paper. My findings will be mainly based on the data on discounting, interest rates and the expansion of both the central banks, their dependencies and the commercial banks. I will analyze this data through the theory of functionalism. Comparative central banking history in the past 50 years has started to embrace 'grand theorizing' with broad cross-national research, looking for similarities within institutions and pointing to convergence among industrialized countries. This approach has drawbacks, as it downplays structural institutional features that underlie homogenized concepts (i.e. 'traditional' and 'modern') that could offer different explanations for cross-national variations in central banking.[13] By looking at the place of DNB and the BoE in the discount function of their respective money markets I am able to analyze how they adapt to changes in the demands of these markets.

My main findings are that both DNB and the BoE developed markedly different between 1864 and 1887 for various reasons. DNB maintained a stable rate with large reserves. The Dutch public possessed large quantities of foreign securities and built a credit system in the 1850s and 1860s that used these securities as collateral, the prolongation system, an on-call

[11] S. Ugolini, *The evolution of central banking: theory and history* (London, 2017) p.11, and S. Ugolini, 'The Historical Evolution of Central Banking' in *Handbook of the History of Money and Currency*, S. Battilossi, Y. Cassis and K. Yago eds. (2020), p. 853.
[12] Uittenbogaard, 'Evolution of central banking', p. 5.
[13] S. Steinmo, T. Kathleen and F. Longstreth, eds., *Structuring Politics: Historical Institutionalism in Comparative Analysis* (Cambridge, 1992) pp. 4-5.

market for short-term credit of three months through the intermediation of brokers. This was often extended into long-term credit. The large discounting houses of Rotterdam convinced DNB to let them become agents of the Bank, which established a direct connection between the Amsterdam prolongation market and Rotterdam. This system was very efficient with small margins of profit and low risks, because of the use of securities as collateral. This left little space for intermediaries such as commercial banks. Dutch civilians were averse to deposit accounts because of their low interest, which also meant little credit for commercial banks. Attempts to introduce large credit associations failed because of a lack of investment opportunities and an already satisfied demand for credit. The presence of the prolongation market in Amsterdam and Rotterdam increased pressure on DNB to expand across the provinces in the 1860s because most initiatives for commercial banks did not come to fruition there. One of the favourite financial instruments in the provinces were the promissory notes. They often lacked the qualifications that DNB required, such as three signatures and they were often dislodged from the underlying trade transaction. However, because of the need for credit in the provinces, DNB started to accept these notes for discounting, even though it imposed strong regulations in 1871.[14]

The BoE had to compete with large commercial banks, provincial banks and discount houses that were much larger in absolute and relative size than those in the Netherlands because of an early amalgamation process of smaller banks into larger ones. The BoE kept low reserves because most of its money was located abroad through its position as a centre of world finance. The Bank dislodged itself from the money market between 1858 and 1890 by refusing bill brokers to discount at the Bank, because this group used the Bank's credit to invest in illiquid assets and kept very little reserves themselves. This made the bank rate ineffective and the system unstable and prone to bankruptcies. DNB was never pushed to a position of lender of last resort between 1864 and 1887 because of the stability of the Dutch money market, while the BoE was pushed into this role during financial crises when the money market experienced such illiquidity that the Bank had to allow bill brokers to discount. Eventually, the bill brokers were allowed to discount at the Bank during non-crises periods in

[14] J. Van Zanden and A. van Riel, *Nederland 1780-1914: Staat, Instituties en Economische Ontwikkeling* (Meppel, 2000) pp. 268-272.

1890, when the commercial banks had established enough reserves themselves, re-establishing a connection with the money market which had been lost since 1858.

The thesis is structured in four parts. The second chapter explains the theoretical framework and the third chapter reviews the historical development of Dutch and English central banking and their money markets in the nineteenth century. The fourth chapter is the functional analysis of the central banks and the discount function of their money markets between 1864-1887 and will answer my research question. The history of central banking has been extensively researched as they are among the most important institutions of state-building, public finance, and financial crises management. The study that this thesis provides sheds light on the unique relationships that these institutions maintained with their national financial markets and the way that central banks were shaped to fit each national model.

II. Theoretical framework

2.1 General central banking functions

Central banks exist in a great variety and historians use various definitions to define them. Economic historian Gerschenkron uses a formal and legislative definition: 'a family of public policies aimed at fostering monetary and financial stability'.[15] Some historians, such as Capie, uses a more technical definition: 'the government's bank, the monopoly note issuer and lender of last resort'.[16] A functional definition is the most useful for my research as I will conduct it through the theories of functionalism: the issuer of banknotes, its role in the interbank payment system and its role of being a banker to the government.[17] According to Ugolini, while the objectives and functions of a central bank cannot be treated separately, because one comes after the other, historians have often focused on the functions rather than the objectives. This does not mean there is an agreement of what its functions are and how many functions there are. Ugolini uses two current standards which are: securing financial stability and monetary stability. The former consists of the management of the payment system, lending of last resort, and banking supervision and the latter the issuance of money and the conduct of monetary policy.[18] For this research, I will mainly look at the function of its role in the interbank payment system' of which discounting is a major facilitator. Therefore, the discounting system within the money market will be the focal point of my research.

The function of a central bank is also time-bound. Their role in national finance changed over time and if defined by their function, there were two types of central banks in the nineteenth century. During the first five decades they were: the monopolist issuer of banknotes, the government's bank, and the lender of last resort. They gave out loans to companies to stimulate trade, printed banknotes, eased the overissue of money, cleared up monetary disarray and underpinned public trust in the accessibility of funds. In the second half, they became a reserve bank that managed exchange rates under the gold standard and gave credit

[15] Ugolini, 'The Historical Evolution', p. 2.
[16] F. Capie, et al., *The Future of Central Banking* (Cambridge, 1994), p. 5.
[17] Uittenbogaard, 'Evolution of central banking?', 5.
[18] Ugolini, 'The Historical Evolution', p. 12.

to banks rather than businesses.[19] The bank also managed and funded the public debt during both periods, increasing the creditworthiness of the country by arranging the issue and payment of government bonds and also buying these bonds which it held against its note issue.[20] DNB never needed to be a lender of last resort because of the lack of bank runs while the BoE fully embraced its role as lender of last resort after the 1866 Overend, Gurney Crisis. After the 1870s the Bank transformed into the banker's bank as it was faced by commercial banks that took over the central bank's role as a private bank in the money market.

Central banks often become the largest and most dominant bank in their country, eclipsing other banks in capital reserves. Because they have both public and private functions they operate on the same markets and sometimes with the same clients as private firms, who were often fearful of competition from the sheer size and monopoly rights of the central bank.[21] Central banks enjoyed privileges that other banks did not, for instance, a monopoly on the issuing of banknotes or being the government's bank. Many financial firms opposed the central bank and their monopoly in support of the free banking school. They believe that the establishment of a central bank has been a political- rather than an economic decision and that these banks have been the source of monetary and financial instability through a moral hazard which is created through the government's guarantee of the Bank. Furthermore, central banks support an inflationary bias towards low inflation which hurts exports. This school of thought also contains the fiscal theory which stipulates that the sole purpose of central banks is to enrich the government.[22] The aversion to central banking that was represented by these schools of thought translated into restraint by legislators to give the Bank a formal place in the constitution.

2.2 The money market

The 'money market' is an overarching name for various markets, such as the securities market, the deposit market, the foreign exchange market, the inter-bank market, the financial market, the bill market, etc. Ugolini (2020) uses the more general term 'market',

[19] Uittenbogaard, 'Evolution of central banking?', p. 153.
[20] Ibidem, p. 19
[21] J. Sykes, *The amalgamation movement in English banking, 1825-1924* (London, 1926), pp. 169-170.
[22] Uittenbogaard, 'Evolution of central banking?', pp. 1-7.

Uittenbogaard (2015) uses the term 'money market' and Ugolini and Flandreau (2011) use both of them, without defining it. Jonker (2003) uses a functionalist approach and names various functions, such as: 'to provide ways of clearing and settling payments, thus facilitating trade; to provide a mechanism for pooling resources and to provide ways of transferring economic resources through time, across borders, and among economic sectors.'[23] For this thesis, I will look at the discounting function as a way of clearing and settling payments and providing a mechanism for polling resources, due to the limited scope of the research. By focusing on function rather than institutions, the functional approach offers a better framework to explain how institutions adapt to changing innovation in the money market.[24] My research will focus on three institutions on the money market: the central banks, the commercial banks and the bill brokers (also known as 'discount houses') because of their vital position in the discount function of the money market. The commercial banks were banks that accepted deposits and issued loans for consumption and investment. The discount houses were firms that specialized in trading, discounting, and negotiating bills of exchange or promissory notes.

[23] J.P.B. Jonker, 'Competing in Tandem: Securities markets and commercial banking patterns in Europe during the Nineteenth Century.' in *The origins of national financial systems: Alexander Gerschenkron reconsidered,* D.J. Forsyth and D. Verdier, eds. (London, 2003), p. 65.
[24] Jonker, 'Competing in Tandem', p. 66.

III. Historical background and theoretical framework

3.1 De Nederlandsche Bank and the money market

On March 25th 1814 DNB was chartered by Willem I of the Netherlands. The institution, which he called 'his oldest daughter', was established out of acute necessity. The wartime expenditures and loss of colonies during the Napoleonic Wars (1803-1815) had left the country indebted and impoverished.[25] The establishment of the DNB fell as a median in a wave of new national chartered central banks that started the modern period of public-private banking in Europe. France (1800), Finland (1811), Norway (1816), Austria (1816) and Denmark (1818) established one after another. According to DNB's charter, the goal was to reinvigorate the Dutch credit supply with a strong centralized institution to boost investor confidence, create a common currency, the Guilder, and consolidate public funds through a private lender system.[26]

The BoE, as an already established central bank, provided a reference for countries all over the world in their mission to establish a centralized banking institution for domestic monetary policy and market liquidity. Most governments took the Bank of England's (BoE) example of non-interference, letting its board of governors decide their banking policy independently, but some countries deviated from this model, such as the French and Danish *étatiste* governments who kept a tight grip on their central banks through their unitary state structure. The Dutch king Willem I imagined a bank that would serve as the sinews of his new government, but his expectations were thwarted by DNB who assumed an independent position from the start. The bank made ample use of its independent authority granted in its charter by ruling out any government interference and avoiding lending to the King.[27]

DNB was created as a local bank for the country's centre of trade and finance: Amsterdam. It enjoyed limited discounting competences, short 2.5 years terms for its directors and ƒ 5 million capital. The Bank was able to grow over the decades as it would expand its absolute and relative competences through charter renewals. It doubled the term

[25] Uittenbogaard, Evolution of central banking?', p. 65.
[26] *Besluit van den Souvereinen Vorst van den 25sten Maart 1814*, no. 105, *Staatsblad* no. 40, houdende het Octrooi en Reglement voor de Nederlandsche Bank (1814).
[27] Uittenbogaard, Evolution of central banking?', pp. 155-156.

of its directors to 5 years and quadrupled its capital to ƒ 20 million between 1838 and 1864.[28] The Bank received opposition from Rotterdam cashiers when it tried to expand in Rotterdam, but DNB struck a deal with four large Rotterdam firms R. Mees & Zn., Gebr. Chabot, P.S. Madry & Zn., and Ian Havelaar & Zn, to serve as DNB agents, which they agreed to. The business of these agents grew from ƒ 11.3 million in 1854 to ƒ 55.6 million by 1864 (24 per cent of total DNB discounts). In the same year, Amsterdam and Rotterdam supplied 97.5% of discounts, against a mere 2.5% coming from elsewhere. Political pressure mounted for DNB to expand across the country to justify its monopoly on note issue. When the charter of DNB was renewed in 1864 it was decided that DNB needed to open a semi-independent subsidiary, the *Bijbank* (branch office), in Rotterdam, therefore complying with the demands of Rotterdam cashiers to operate on a mostly independent basis. By 1868 Amsterdam discounts had fallen to 50 per cent of the total, with Rotterdam remaining at 24 per cent and the provincial agents supplying the rest. This development shows how DNB was willing to change adapt its structure to accommodate the discount houses in the money market.[29]

The Bank was limited in what it was allowed to do on the money market by the 1864 act which mentions an exhaustive list of tasks: discounting of bills of exchange, promissory notes, lending of securities, trade in gold and silver, receiving money in current accounts and the buying and selling of bills of exchange and other commercial papers. The Bank was forbidden to lend unsecured credit, participate in another enterprise, buy goods or securities and lend money through mortgage or ships. The Bank could therefore not participate in the lucrative trade in securities or provide interest for funds entrusted. These restrictions were implemented by the legislator as a countermeasure to the Bank's advantages that it gained by financing its credit through the issuing of tax-free banknotes.[30] The Bank was given no clearly defined goals because the legislator had no desire to obstruct policymaking by DNB's Board of Governors. However, the Board of Governors considered the advancement of banking as one of its most important goals.[31]

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[28] R. Van Zwet, *De ontwikkeling van de Bankwet 1814-1998. Van 's Konings oudste dogter tot integrerend onderdeel van het ESCB* (Amsterdam, 2001), pp. 2-3.
[29] Jonker, *Merchants, Bankers, Middlemen*, p. 183.
[30] Kymmel, *De geschiedenis*, ii-b, p. 354.
[31] Ibidem, p. 355.

The Board of Governors maintained a policy between 1864 and 1887 that the Bank should serve the needs of smaller businesses, which they repeated in their 1888-89 annual report. In practice, between 1866 and 1898 the percentage of bankers that discounted at the Bank grew from 52 per cent to 85 per cent in Rotterdam and Amsterdam and 95 per cent at the various DNB agencies. The Bank served the needs of large commercial banks rather than small businesses. This did solve one practical problem for DNB: being unable to correctly assess the creditworthiness of businesses that applied for short-term credit. The commercial banks had closer connections to the business that applied for credit and could better assess their creditworthiness than DNB. They were used as intermediaries between DNB and the businesses that needed credit. The commercial banks had little reserves because of the Dutch dislike of bank deposits, which gave little interest. The commercial banks were dependent on DNB and DNB was dependent on their credit applications in an interdependent system. DNB's Board of Governors could decide how much credit they wanted to issue, to whom and under which collateral.[32] DNB remained the largest bank in the country in terms of lending and discounting until 1914.[33] Between 1864 and 1887 its lending increased from ƒ 29.6 million to ƒ 36.7 million and further to ƒ 50.5 million in 1890, while the three largest regular commercial banks lend between ƒ 10 million and ƒ 12 million each in 1887 (Amsterdamsche Bank, Kas-Vereeniging and Twentsche Bankvereeniging).[34] The interdependence between DNB and the commercial banks for the discounting function in the money market was possible because the commercial banks remained relatively small.

The Dutch money market developed a prolongation market that provided credit from entrepreneurs and wealthy citizens for three months against short-term Lombard loans backed by securities transacted at the stock exchange. This was rather popular in the Netherlands as the Dutch population had amassed a great number of securities which had grown from ƒ 2400 in 1864 to ƒ 3000 million in 1877.[35] The amount of money that DNB lend with securities as collateral increased from ƒ 23.6 million in 1866 to ƒ 33.6 million in 1887.[36] As a pool of deposits was turned into advances through the intermediation of brokers and

[32] Ibidem, pp. 356-358.
[33] Ibidem, p. 351.
[34] De Jong, *Geschiedenis van de*, iii, pp. 556-651.
[35] De Jong, *Geschiedenis van de*, ii, p. 205.
[36] De Jong, *Geschiedenis van de*, iii, p. 583.

kassiers[37], it offered the saver both flexibility and a safe investment because of the pledged securities. According to Jonker, this was also the reason for the very few bank runs and panics in the Netherlands. The prolongation was also favourable for investors because of the minimal interest rate differentials that occurred as a result of the competition and commission-driven intermediation on the prolongation market.[38] The prolongation could automatically be extended and was often done so. This system, in which intermediation by commercial banks was unnecessary, functioned well until the 1910s.[39]

Between 1855 and 1865 the prolongation system became a nation-wide practice centred in Amsterdam, strengthening its grip over the country's financial markets in a pincer movement and counteracted local initiatives for provincial banking, which remained relatively weak and dependent on DNB for credit. The prolongation system siphoned off the deposits to Amsterdam. This development did not mean that DNB controlled the country's credit facilities as the links with the capital's money market were fragile and most of the large merchant-bankers or commodity houses would not discount at DNB. As a behemoth, the Bank loomed over all the different institutions in the money market, but most business – such as the kassiers – bypassed its office at the Turfmarkt. Moreover, DNB could not fully become a lender of last resort because the market contained enough stretch to absorb any shocks. During the financial crises of 1857 and 1866, there were no major credit operations by DNB, even though the Board of Governors offered to support failing banks.[40] The prolongation system caused the money market to remain fragmentized, which was a roadblock to larger and stable funding necessary for commercial banking or a closer relationship between banking and industry as had happened in Belgium and Prussia during this period.[41] The short-term credit turned into capital because of its frequent rollover and its use for formal equity participations through which it supplied Dutch manufacturing industries with credit to expand.[42]

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[37] A financial intermediary on the Dutch money market
[38] Jonker, *Merchants, Bankers, Middlemen*, p. 267.
[39] G. Westerhuis, 'Commercial Banking: Changing Interactions between Banks, Markets, Industry, and State' in *The Oxford Handbook of Banking and Financial History*, Y. Cassis, C.R. Schenk & R.S. Grossman eds. (2016), p. 118.
[40] Jonker*, Merchants, Bankers, Middlemen*, p. 184.
[41] Ibidem, p. 267.
[42] Ibidem, pp. 266- 267.

In the 1850s small-firm private bankers, kassiers and commissionaires were still the norm in the Netherlands. They would focus on trade in securities rather than providing credit for trade and industry. An increase in trade did eventually lead to a higher demand for credit and the establishment of new credit institutions. The so-called *kredietverenigingen* (mutual credit associations) were set up to supply credit to smaller businesses who would otherwise experience difficulty obtaining credit through the private discount market because they did not possess premium securities. However, these mutual credit associations lacked the funds to provide enough credit for the overall demand because Dutch citizens disliked depositing their money with them due to the low interest. This shortage was filled by discount market funds or by applying for credit at DNB through lending or discounting.[43] The prolongation market siphoned off most profit margins and because there was a lack of large domestic opportunities, most of these credit associations were unsuccessful.[44]

A popular financial instrument for discounting in the Netherlands was the promissory note. It was a written promise by one party to pay another party a sum of money either on-demand or at a specified date. These promissory notes were often extended past the specified date which meant they became dislodged from the primary trade deal for which they were signed for and became de facto long-term loans. The paper changed into credit notes because the buyer and seller had no intention of paying the debt on the expiry date nor was there an underlying debt in the transaction. The businesses in the Dutch provinces made ample use of the promissory notes for two main reasons. First, because they were excluded from the prolongation market in Amsterdam and Rotterdam. Second, discounting at DNB was a sign of bad finances because it meant that local credit networks, based on personal relations, would not have given you any credit. These promissory notes, which were a form of bills of exchange, required three signatures of good standing which were the persons that could be addressed for the money at the due date. However, many bills of exchange and promissory notes lacked three signatures and those that had them lacked quality.[45]

DNB established a strict code of conduct for its branches in 1871 to not accept these long-term promissory notes that became long-term credit paper (*credietpapier*). Legally DNB

[43] De Jong, *Geschiedenis van de*, ii. pp. 128-131.
[44] De Jong, *Geschiedenis van de*, iii. p. 574.
[45] De Jong, *Geschiedenis van de*, ii. pp. 182-183.

was not even allowed to accept these papers, because the 1864 charter, stipulated that DNB could only accept 'bills of exchange and other commercial paper. A literal interpretation would exclude trade credit in the form of long-term promissory notes.[46] The fact that DNB still allowed many promissory notes to be discounted meant that it was willing to put aside restrictions from its charter to maintain its discount function in the money market.

3.2 The Bank of England and the money market

Whereas numerous central banks were established as *de novo* institutions in early nineteenth-century Europe, the BoE had a much older legacy, being incorporated by Parliament on the 27th of July 1694. It was established with a temporary usage in mind and an 11-year guarantee that could thereafter be dissolved upon a year's notice.[47] It did not have the features of a central bank at this time as it was not the government's bank, did not have a monopoly on joint-stock banking and its notes were not legal tender. The Bank developed over the centuries in a two-way structure: it became the banker to the state and managed the national debt and it became one of the largest financial institutions in the City of London.[48] According to Adam Smith, it was 'a great engine of the state' that stood at the centre of Great-Britain's rise as an imperial world power by allowing the economy to finance its resources on a global scale.[49]

Before British Prime Minister Frederick North declared that the BoE had become a core part of the English state and should be part of its constitution in 1781, during the final days of the American War of Independence, the BoE's position as the central bank of England was by no means secure.[50] Before the Bank reached this point of general recognition it had experienced a turbulent history. The Bank's first objective had been to provide a low-rate loan to King William III and Queen Anne in 1694 but thereafter started to expand its tasks by constructing a more stable permanent public debt system. First, it established a permanent

[46] Ibidem, pp. 182-185.
[47] J.L Broz and R.S. Grossman, 'Paying for privilege: the political economy of the Bank of England charters 1694-1844' *Elsevier BV* 41:1 (2004), pp. 48-56.
[48] R. Roberts and D. Kynaston, *The Bank of England: Money, Power and Influence 1694-1994* (Oxford, 1995), p. 1.
[49] A. Smith, *An Inquiry into the Nature and Causes of the Wealth of Nations* (London 1776) ed. S.M. Soares (5 vols, New York, 2007) i, p. 249.
[50] Roberts, *The Bank of England,* p. 3.

debt, second the floating debt and finally the conversion of the national debt.[51] The Bank had three main private tasks: the receiving of deposits, the lending of money and the issue of banknotes by reducing the interest rate and guaranteeing the paper currency. This ameliorated the main faults of the previous banking system that developed with the goldsmiths of London who asked high-interest rates of above 6 per cent and lacked security because they did not receive government backing.[52] The BoE differed from continental banks, such as those of Venice, Genoa and Amsterdam in three major ways: the BoE was not just a deposit bank (but also transferred its credit in paper money for trade), its notes were not legal tender and the BoE did not possess a full monopoly until 1709.[53]

During the Revolutionary and Napoleonic Wars (1793-1815) England's public debt increased from £247 million to £861 million.[54] However, England was able to muster the resources to fight the wars through the Industrial Revolution which had brought great wealth to England, without having the BoE indulging in excessive note issue. The country saw an increase in trade from £13 million export and £11 million import in 1783 to £58 million and £32 million in 1815, which was heavily taxed.[55] The increase in the industry led to the creation of country banks to provide credit. The BoE supported these banks by increasing its discount rate, so the country bank attracted more discounts. Although the BoE had gained a monopoly right of note issue in England in the Act of 1742, banks with less than six partners were not affected. The BoE did not want to obstruct the country banks and refused to open branches in the countryside. Many small businesses took the opportunity to become banks and this number grew from 12 in 1750 to 400 by 1793. Their desire for high profits and its unbacked note issue led to an unstable system and financial crises in 1793, 1797, 1810 and 1812. The BoE had refused to lend to these small banks because of their bad credit, which led to 273 bankruptcies between 1791-1818.[56] By deciding which banks to support, the BoE was able to filter 'bad' banks out of the money market.

The 1844 Banking Act extended the BoE's exclusive note-issuing power as a monetary manager under the gold standard. It divided the bank into two sections: The Banking

[51] Andréadès, *History of the Bank,* pp. 3-4.
[52] Ibidem, p. 45.
[53] Ibidem, pp. 81-83.
[54] Ibidem, pp. 143-162.
[55] Ibidem, pp. 168-170.
[56] Ibidem, pp. 171.

Department and the Issue Department. The former had no official rules for its operation, whilst the latter had many and could not freely issue banknotes without the backing of government securities or their value in gold, the so called 'cast-iron system'. This system was often suspended by the government during a financial crisis to allow the Bank to lent more freely and maintain the circulation of money. The overall bank objectives where: convertibility, profitability, and home trade. These objectives have had a conflicting effect on the Bank's policy as the Bank often had to choose between profit or convertibility, especially during periods of crises.[57] Firms that wanted to discount at the Bank had to have a Directors' recommendation and their firms had to be located in London and be engaged in trade. The right to discount at the Bank had caused overtrading in the past and created such a severe crisis and shortage of reserves in 1858 that the Bank abolished the right to discount at BoE.[58]

The English money network before the amalgamation of the commercial banks in the 1860s connected the banks to the discount houses and the central bank. One of its main features was the 'acceptances' that were bought by large commercial banks through bill brokers. Acceptances are contractual agreements between an importer to pay the price for the receiving goods at a specified future date. Over time, the bill brokers would purchase these acceptances from the commercial banks. Both the commercial banks and bill brokers maintained low reserves and large amounts of acceptances which are illiquid. Therefore, they had to call upon the help of the BoE during crises to support them with credit.[59] Figure 1.1. portrays the simplified balance sheets that illustrate the connections. The discount houses used bank deposits to fund their bills of exchange and advances and they might rediscount these bills of exchange for cash at the BoE.[60] In England, the amalgamated joint-stock banks took over the role of the BoE as the main provider of currency and as a regulator of the money market in the second half of the nineteenth.[61]

[57] N. Davutyan and W.R. Parke, 'Operations of the Bank of England 1890-1908: a dynamic probit approach.' *Journal of Money Credit and Banking* 27:4 (1995), pp. 1106-1108.
[58] Kynaston, *The Bank of England*, pp. 155-156.
[59] M.D. Bordo and W. Roberts eds., *The Origins, History, and Future of the Federal Reserve: A Return to Jekyll Island*, (Cambridge, 2013), p. 119.
[60] Anson, *Staff Working Paper,* pp. 11-13.
[61] W. Bagehot, *Lombard Street: A Description of the Money Market* (London, 1910) xii.

Figure 1.1

Connections between the money market, discount houses and the central bank

Banks		Discount houses		Bank of England	
Liabilities	Assets	Liabilities	Assets	Liabilities	Assets
Deposits Notes Equity	Bills Call loans	Call loans Equity	Bills Bank notes	Bank notes Equity	Bills

Source: M. Anson, D. Bholat, M. Kang, R. Thomas, Staff Working Paper No. 691, The Bank of England as lender of last resort: new historical evidence from daily transactional data (2017)

IV. Functional analysis and results

In this chapter, I will research data from the BoE and DNB to determine if discount houses and commercial banks were able to influence central banking structure in The Netherlands and England. My research spans the period between 1864 and 1887. I will discuss to what degree DNB and the BoE were willing to change their structure and policy to facilitate their position in the discount function of the money market. For England, I will specifically look at the support of BoE for bill brokers, who functioned as influential unregulated discounters on the money market. For the Netherlands, I will look at the use of long-term promissory notes by DNB. I will use a combination of a narrative approach with qualitative data from De Jong's statistical tables retrieved from the DNB archives and the statistical data from the BoE published by Anson, Bholat, Kang and Thomas.

4.1 Methodology

I will analyze the results from the research in this thesis through *Gerschenkron's* functionalist approach. He links central bank variations to developments in the functional space of the money market, which he calls the 'institutional equilibria'.[62] In an institutional equilibrium, a certain group of institutions is endogenized simultaneously in such a way that the design of one is an optimal response to the designs of the others.[63] This theory is based on the general equilibrium theory of demand and supply of goods in competitive economic systems by Arrow and Debreu.[64] Besides, Jonker used the functional approach in combination with the 'financial systems analyses' to describe the emerge of cross-national central banking patterns in various West-European countries by the middle of the nineteenth century. Instead of focusing on one institution, he analyzes the complete system through basic functions. This function-orientated approach is better at explaining the interrelationship between

[62] Ugolini, 'The Historical Evolution', p. 836.
[63] European Research Council. (2011). *General Institutional Equilibrium Theory and Policy Implications* (Project No. 283236) European Commission: CORDIS https://www.sv.uio.no/esop/english/research/projects/gine/GInE.pdf, 6.
[64] K.J. Arrow and G. Debreu, 'The Existence of an Equilibrium for a Competitive Economy' *Econometrica* 22:3 (1954), pp. 265-266.

instruments, markets, institutions and the provisions of financial services through competitive innovation than historical institutionalism.[65]

Functionalism is commonly used by more recent historians, whereas previous ones used 'new historical institutionalism' as a framework for central banking history.[66] According to historical institutionalism, institutions have a path-dependency and this can lead to non-optimal outcomes because of the difficulty of changing an institution. It also emphasizes the way institutions structure behaviour and establishes different 'rules of the game' in each country, which explains international variations.[67] Authors such as Ugolini and Uittenbogaard, as well as the authors in the comprehensive collection by Forsyth and Verdier on financial differentiation in nineteenth-century European banking structures, have embraced functionalism rather than new historical institutionalism. Comparative central banking history in the past 50 years has started to embrace 'grand theorizing' with broad cross-national research, looking for similarities within institutions and pointing to convergence among industrialized countries. This approach has drawbacks, as it downplays structural institutional features that underlie homogenized concepts (i.e. 'traditional' and 'modern') that could offer different explanations for cross-national variations in central banking.[68] According to Levine (1997), the relationship between the financial structure and the functioning of the financial system should be researched by looking at the interrelationship between instruments, markets, institutions and the provision of financial services rather than one financial institution or instrument.[69] Considering the research in this thesis will make a comparison between two financial systems and the structural changes within those systems, my research is most benefited using this functional approach in combination with a statistical data analysis.

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[65] Jonker, 'Competing in Tandem', pp. 65-67.
[66] Steinmo, *Structuring Politics,* p. 3.
[67] D.D. Porta and M. Keating eds*., Approaches and Methodologies in the Social Sciences: A Pluralist perspective* (Cambridge, 2008) pp. 123-127.
[68] Steinmo, *Structuring Politics*, pp. 4-5.
[69] Levine, 'Financial Development', p. 689.

4.2 De Nederlandsche Bank and the discounting function of the money market 1864-1887

The Dutch money market experienced a steady growth of commercial banks from 5 in 1864 to 20 in 1893. This growth was very slow compared to the year between 1893 and 1914 when 139 commercial banks were established.[70] In comparison, in England, the number of commercial banks decreased from 113 in 1849 to 104 by 1889 through an amalgamation of smaller banks.[71] Credit in the Netherlands concentrated into five large commercial banks who dominated the market: the Nederlandsche Handel-Maatschappij (1824), Twentsche Bankvereeniging (1861), Rotterdamsche Bank (1861) and the Amsterdamsche Bank (1871).[72] DNB was able to steadily expand its total credit operations in the period between 1864-1887 from ƒ 74.6 million discounts and loans to ƒ 120 million in 1878 with a contraction thereafter to ƒ 73 million in 1886 and a modest growth to ƒ 87 million in 1887 that continued the following years.[73]

The contraction after 1878 occurred because of a reduction in its discounts that signified a changing discount function within the money market. Table 1.1 shows how total discount business declined by 62.9 per cent while the percentage of commercial banks as discounters grew from 52.9 per cent to 67.1 per cent. Table 1.2 shows how the number of commercial banks that discounted at DNB declined from 27 in 1864 to 21 in 1887 as did the total number of discounters.[74] DNB's position in the discount function of the money market was taken over by the large commercial banks, while the smaller banks were still reliant on DNB for discounting. This means that DNB started to orientate towards the smaller banks, which were located mostly in the provinces and favoured discounted promissory notes.

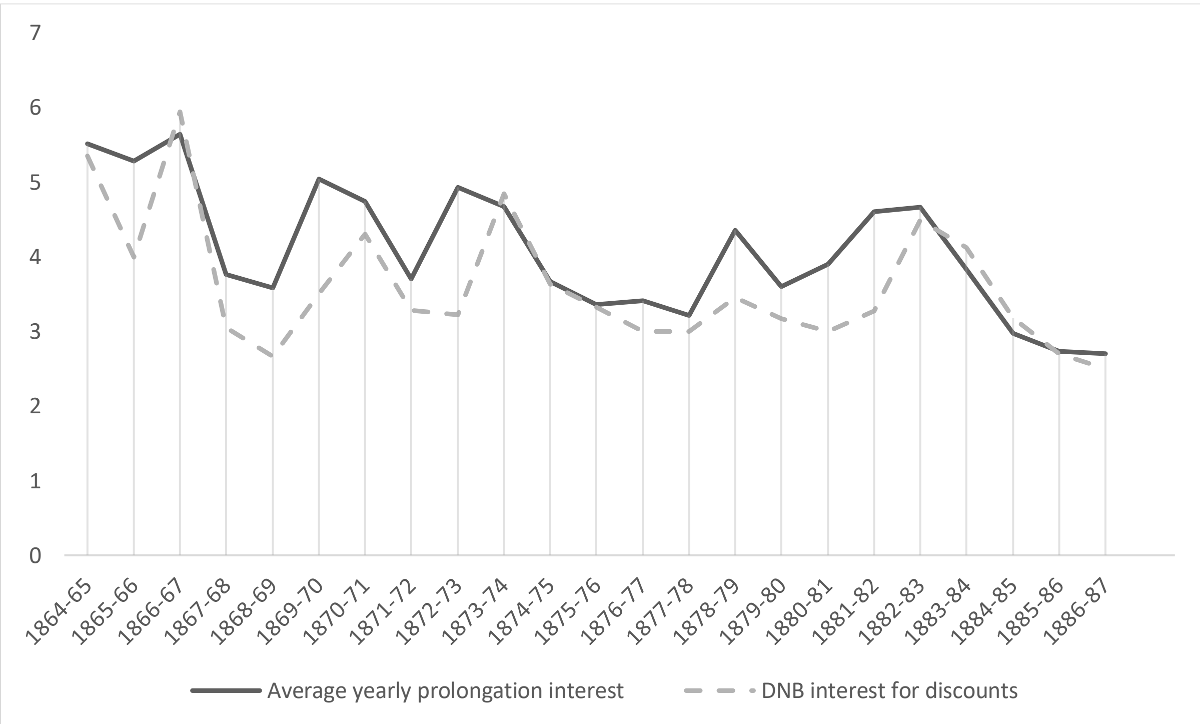
These changes in the discount market were not the only developments that pushed DNB towards a different position in the money market. During the 1870s the prolongation savings were far greater than DNB's capital and this meant that the bank rate would become a less efficient instrument of influencing the liquidity of the money market through interest rate policy. Graph 1.1 depicts how the prolongation interest did not follow DNB's discount

[70] De Jong, *Geschiedenis van de*, iii, p. 648.
[71] J. Turner, *Banking in Crisis: The Rise and Fall of British Banking Stability, 1800 to the Present* (Cambridge, 2014), p. 56.
[72] Westerhuis, 'Commercial Banking', p. 118.
[73] De Jong, *Geschiedenis van de*, iii, pp. 546-547.
[74] Ibidem, p. 577.

interest. The Bank was not allowed by its charter to be involved in the stock exchange or deposits, which would have given it a greater share of influence over the market. The Bank lacked leverage over the financial system through its interest rate policy and was therefore following the prolongation rate rather than leading with its own discount rate.[75] Deposits were channelled by stockbrokers and cashiers into the prolongation market that was very liquid and knew few shortages.[76] The prolongation interest followed the amounts discounted at DNB until 1873-74 after which they deviated until 1877-78 when they became similar again. This development highlights DNB lost influence over the most important rate on the money market, the prolongation rate.

Graph 1.1

Average yearly prolongation interest and DNB interest on discounts, 1864-1887



Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

Dutch commercial banks were dependent on DNB for liquidity and they did not need to worry too much about their resources as long as DNB was willing to lend to them on easy terms. DNB would accept almost any client with good securities as collateral and a lack of

[75] Jonker, *Merchants, Bankers, Middlemen*, p. 271.
[76] Ibidem, p. 276.

reserves. The banks profited through provisions paid by their clients and because their discount rate was always a little higher than DNB's discount rates. In 1875 the seven largest commercial banks discounted a number at DNB that was 127 per cent of their discount portfolio (which consisted mainly of promissory notes and bills of exchange). By 1886 this number had receded to 78.8 per cent, showing that these banks found better ways to discount their bills. This development highlights the declining role of DNB as a provider of liquidity to the commercial banks. Table 1.3 shows the increased reserves of the seven largest commercial banks. Even though the banks became less reliant on DNB for their credit after 1875, for most banks DNB was the most important and cheapest institution for refinancing their promissory notes and securities credit. This development worried the Board of Governors, according to their annual reports, as smaller illiquid banks in the provinces were still very reliant on DNB for discounting facilities and expected the Bank to always provide this service to them. This was especially worrisome considering the popularity of promissory notes in the provinces.[77]

Table 1.1

Total amount of domestic non-treasury paper discounted at the Amsterdam office (in millions of guilders), 1864-1887

Year	Amounts discounted			Percentage of total amounts discounted				
	Commercial banks	Others	total	Commercial banks	Other discounters			
					Large (ƒ 500k)	Medium (ƒ 200-500k)	Small (ƒ 50-200k)	Smallest (ƒ <50k)
1864-65	88.5	78.9	167.4	52.9	27.4	7.7	7.7	4.3
1875-76	150.6	59.1	209.7	71.8	17.6	3.9	4.4	2.3
1886-87	44.7	20.4	62.1	67.1	12.7	5.7	8.7	5.8

Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

[77] Kymmel, *De geschiedenis*, ii-b, pp. 363-370.

Table 1.2

Number of discounters of domestic non-treasury paper at the Amsterdam office, 1864-1887

Year	Commercial banks	Other discounters					General total
		Large	Medium	Small	Smallest	Total	
1864-65	27	36	43	126	595	801	827
1875-76	26	30	29	88	685	832	858
1886-87	21	9	12	52	331	404	425

Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

DNB's position in the discounting function of the money market was not completely dependent on the demands from the commercial banks and discount houses, as it could influence discounting through its application requirements. The Bank created a set of standards, such as an increase of the capital ratio and the requirement to post monthly financial statistics to DNB, for clients to be allowed to discount at the Bank.[78] Not all banks complied, but this did not cause to many banks being denied business with the Bank. DNB had to find a balance between its task of providing discounting services to anyone with a good reputation but a lack of credit and keeping its discounting standards high.[79] Looking at the development of credit operations of DNB to non-state actors in graph 1.3 visualizes the trend of diminishing credit operations. The graph starts in 1866 because it is the first year after the Rotterdam branch office was opened. Interestingly, the offices in Amsterdam and Rotterdam experienced a decline in issued credit and discounting, while there was an increase with the agencies. This development shows both that commercial banks achieved some growth in these cities and could compete with DNB and the difficulty of commercial banks outside of Amsterdam and Rotterdam to compete on the same level.[80] Amsterdam, at the heart of the prolongation market, contained five of the largest commercial banks, as shown in Table 1.3. There was very little growth in provincial banking as the agencies increased only from 12 to 13 between 1864 and 1887.[81]

[78] De Jong, *Geschiedenis van de*, ii, p. 187.
[79] Ibidem, pp. 188-190.
[80] Ibidem, p. 391.
[81] De Jong, *Geschiedenis van de*, iii, p. 619.

Table 1.3

Comparative data on debtors, own and foreign funds of seven of the largest regular commercial Dutch banks for December 1873, 1888 and 1893 (In thousands of guilders)

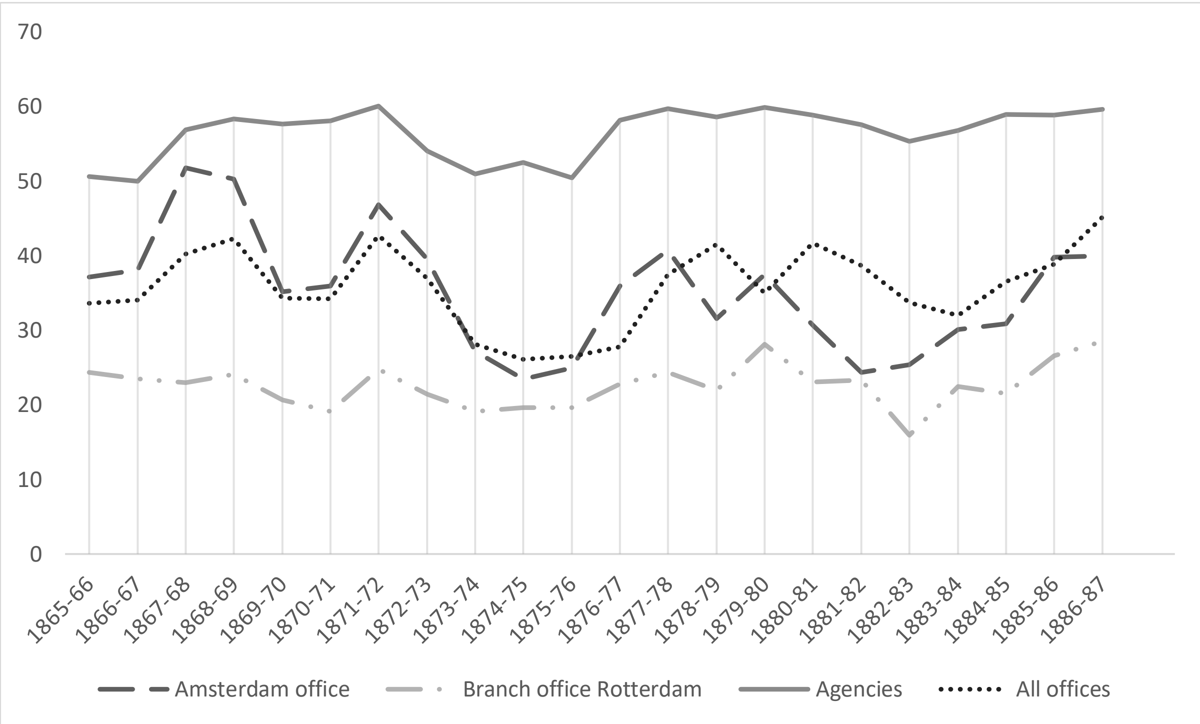
Name and location of the bank	Year	Debtors	Capital	Reserves	Deposits and creditors
Amsterdamsche Bank , Amsterdam (1871)	1873 1888 1893	7.258 10.636 12.826	10.000 6.000 6.000	8 950 1.295	1.081 5.401 8.101
Credietvereeniging van 1853, Amsterdam (1853)	1873 1888 1893	6.455 4.475 5.319	2.141 1.796 1.688	369 181 220	4.119 2.676 3.627
Geldersche Credietvereeniging, Arnhem (1866)	1873 1888 1893	2.202 4.736 5.319	585 1.470 1.719	31 476 528	1.666 2.921 6.248
Kas-Vereeniging, Amsterdam (1865)	1873 1888 1893	8.222 12.255 12.095	3.500 5.000 5.000	119 695 923	5.777 8.315 8.046
Ontvang- en Betaalkas, Amsterdam (1813)	1873 1888 1893	2.572 4.715 5.134	1.000 3.000 3.000	3 129 179	2.222 2.372 3.192
Rotterdamsche Bank, Rotterdam (1863)	1873 1888 1893	8.926 8.328 8.499	9.688 5.294 5.142	328 428 569	3.391 3.569 4.020
Twentsche Bankvereeniging, Amsterdam (1861)	1873 1888 1893	6.195 11.503 14.926	5.224 7.511 7.598	159 1.005 1.377	3.704 8.004 9.604

Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

Interestingly the discount portfolio of the Amsterdam and Rotterdam offices declined by 70 per cent between 1864 and 1887, while it grew by 500 per cent in the agencies who overtook Amsterdam and Rotterdam in total discounts by 1877, visualized in graph 1.3. This had a strong effect on the use of long-term promissory notes as the number of promissory notes increased as a percentage of total DNB discounting between 1865-71 from 50,58 per cent to 60,04 per cent at DNB agencies. After the strict measures imposed by DNB upon the long-term promissory notes in 1871, this percentage declined in the following years to 54,02 per cent in 1872-73 and 50,92 per cent in 1873-74. It would increase again to 59,66 per cent in 1877-78 and even 63 per cent in 1888-89.[82]

Graph 1.2

Percentage of promissory notes and equivalent paper in DNB discounting per fiscal year and



Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

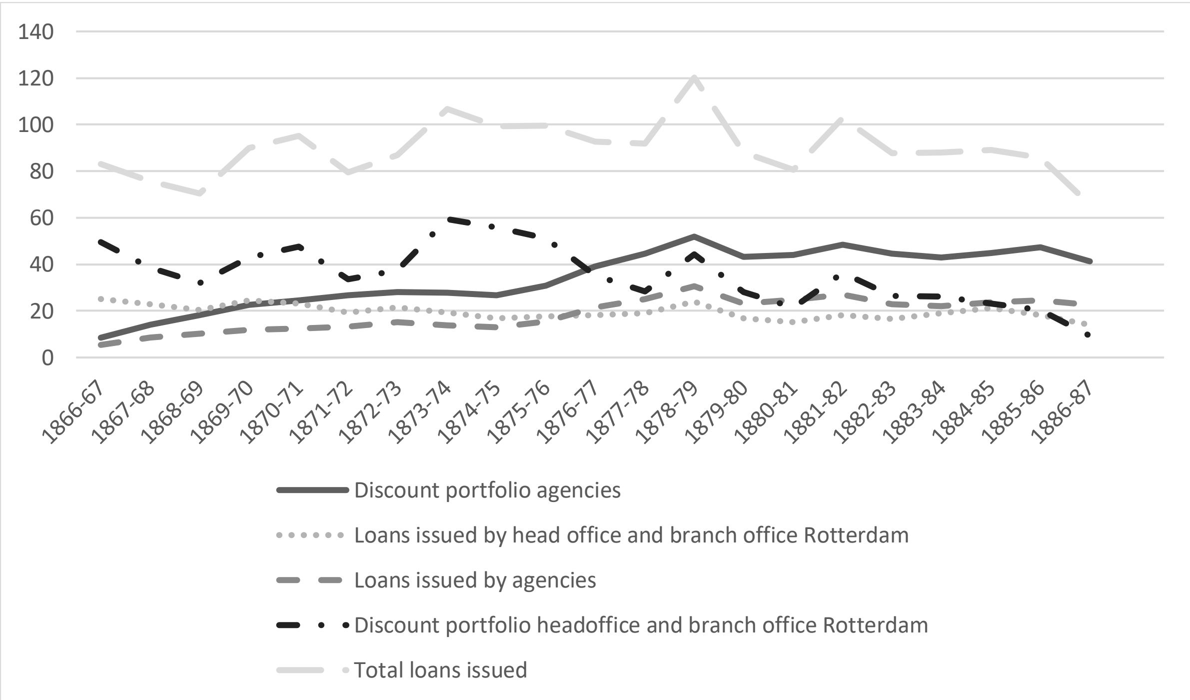
The agencies had an important role in facilitating the discounting of promissory notes, because of their popularity outside Amsterdam and Rotterdam. Graph 1.3 depicts how in 1866-67 only 10.22 per cent of total DNB credit was issued through the agencies, but this increased to 65,76 in 1888-89. There was a slight decrease between 1871-75 from 33.51 per cent to 26.77 per cent after which it steadily increased again.[83] During the 1869-75 period there was a declining growth in the agencies discount portfolios, whereafter it increased again.[84] Graph 1.2 and 1.3 show how DNB between 1864 and 1887 became an important

[82] Ibidem, p. 574.
[83] Ibidem, pp. 568-569.
[84] Ibidem, p. 564.

discounter of promissory notes for provincial businesses that would otherwise not be able to gather funds on the prolongation market because they lacked good securities to serve as collateral. This development was contrary to DNB's exhaustive list of competences from its charter and the wishes of its Board of Governors to only discount with short-term bills that possessed three signatures of good standing. The Bank moved towards a different position in the discount function of the money market because the prolongation market cut off the provinces from Amsterdam and Rotterdam finance.

Graph 1.3

Domestic loans issued by DNB for non-state entities, 1866-1887 (in millions of guilders)



Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

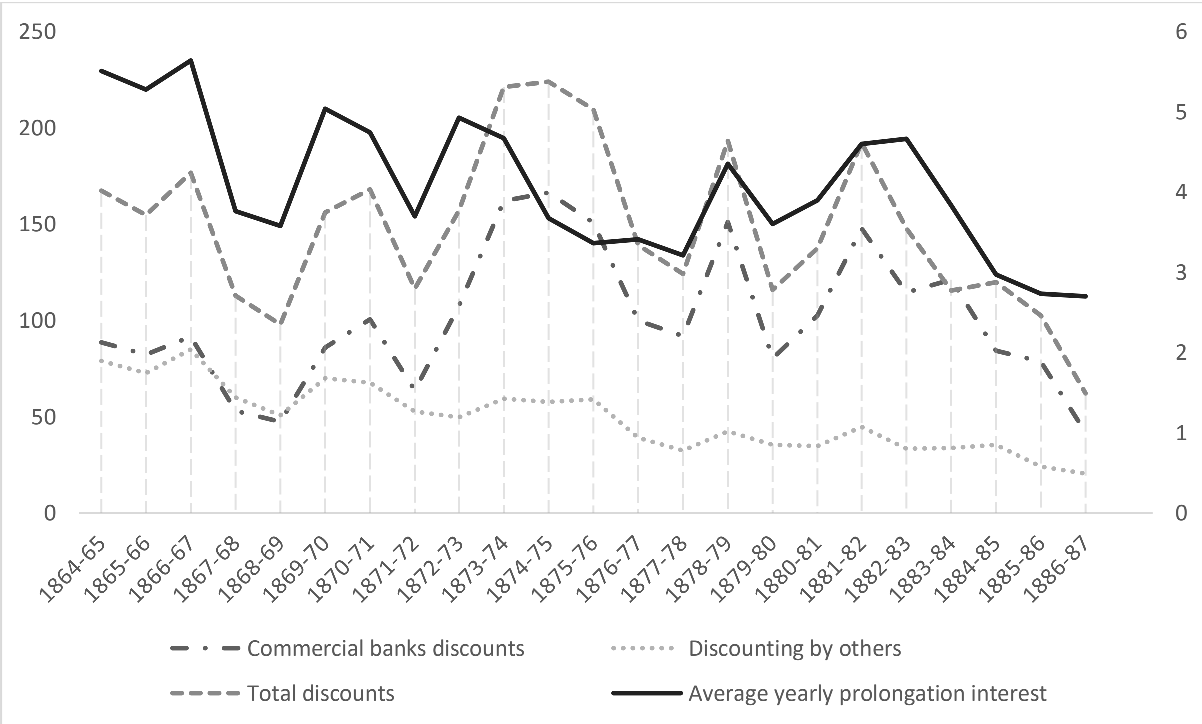
DNB's changing position in the money market was a reaction to the concentration of credit into seven commercial banks that were able to compete with the Bank's powerful position in the discount market. In 1893 the Netherlands had 28 commercial banks (excluding the colonial banks) who maintained ƒ 90 million of credit, ƒ 45 million capital and reserves and ƒ 58.8 million in 'deposits and creditors'. The seven banks mentioned in Table 1.3 possessed 74 per cent of total debtors in the Netherlands, 78 per cent of all capital and reserves and 73 per cent of foreign resources in the country.[85] The money in deposits and creditors of the Amsterdamsche Bank, de Rotterdamsche Bank and the Twentsche Bankvereeniging were lower than the own resources of the commercial banks, meaning that Dutch citizens were still distrustful of deposit accounts. This started to slowly change after 1875 when more commercial banks were introducing overdraft accounts. The introduction of overdraft accounts had two important consequences: it slowed the development of the discount market and made businesses more eager to apply for credit with the commercial banks rather than with DNB. The Bank did not provide current accounts until 1889 and only then with strict standards for the securities used.[86]

The commercial banks in the provinces did not become competition for DNB's agents as they were too small. In Amsterdam and Rotterdam they were able to compete with DNB for discounts due to their increased size and share of DNB discounts as visualized in Table 1.3 and Graph 1.4. Overall credit supply by DNB to non-state actors did decline from ƒ 76.4 million in 1866 to ƒ 76.1 million in 1887.[87] This was the result of increased competition from commercial banks and declining economic growth.[88]

[85] De Jong, *Geschiedenis van de*, ii, p. 384.
[86] Ibidem, p. 386.
[87] De Jong, *Geschiedenis van de*, iii, pp. 564-565.
[88] De Jong, *Geschiedenis van de*, ii, pp. 391-392.

Graph 1.4

The total amount of discounted non-Treasury domestic bills at the DNB office in Amsterdam and the average prolongation interest on the Amsterdam Stock Exchange on the right vertical axis, 1864-1887 (in millions of guilders)



Source: A.M. De Jong, *Geschiedenis van De Nederlandsche Bank* (5 vols, Haarlem, 1967).

In 1864 the two largest discounters at DNB were the Amsterdam Credietvereeniging with ƒ 31 million and the Rotterdamsche Bank with ƒ 26 million and R. Mees & Zoonen in third place with ƒ 18 million. By 1887 the largest three were the Credietvereeniging with ƒ 21 million, the Twentsche Bankvereniging with ƒ 20 million and the Rotterdamsche Bank with ƒ 18 million.[89] The number of promissory notes traded by the seven largest commercial banks grew considerably from ƒ 3 million in 1875 to 16 million in 1890 and would reach ƒ 26 million in 1895, despite strong regulation on promissory notes by DNB.[90] All in all, DNB was able to regulate the quality of notes that arrived at the Bank, but only partly. The commercial banks

[89] Kymmel, *De Geschiedenis*, ii-b, p. 365.
[90] Ibidem, p. 479.

became less reliant on DNB for discounting and smaller firms started to discount promissory notes at the commercial banks rather than DNB.

4.3 The Bank of England and the discounting function of the money market 1864-1887

The British money market changed rapidly during the 1864-1887 period through an amalgamation process where small private finance firms joined into larger commercial banks which superseded the BoE in their cumulative size. Before the 1870s private banking firms operated locally and usually had no more than two offices that were situated in the same neighbourhood as the residences of the partners.[91] The number of private banks was reduced from 554 in 1825 to 2 in 1924 with 13 joint-stock banks possessing 8,081 branches. The banking system became more efficient as the number of significant failures decreased from 11 in 1843 to none in 1890. This development had multiple effects on the British money market: professionalization of the banking business, lower profits and capital ratios for joint-stock banks, increased use of BoE banknotes and higher gold ratios of the BoE. Through amalgamation, the banking system became more efficient, professional safer and accessible for all citizens in comparison to the previous system of merchant banks that operated with high risks, with no regard for the national banking position and worked only for a small number of clients. Before this development, the acceptance business was in the hands of private banks, the discount houses and the acceptance firms in a virtual monopoly. The new system saw smaller profits due to fierce competition, a dislike for conservative governorship and minimalized risks.[92]

Banking had become more scientific, less secretive and without disregard for the national perspective. Increased competition for joint-stock banks has also made them more cautious and strong adherence to sound banking.[93] A negative side effect was that insufficient liquidity ratios became more frequent when small-to-medium-sized joint-stock banks were absorbed into large concerns. This increased the dangers of failure, especially with fast expansion through amalgamation. Furthermore, over-competition and low profits may compel banks to establish a common agreement, creating a private cartel as had happened

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[91] Sykes, *The amalgamation movement,* p. 112.
[92] Ibidem, pp 95-96.
[93] Ibidem, p. 122.

in Scotland. The amalgamation movement diminished the number of private banks in England by more than 5 per year between 1864 and 1887.[94] London commercial banks and discount houses lacked the money to finance their operations and therefore had to discount their bills at the Bank of England. Before 1864 the BoE had so much capital that it could absorb all other banks, but the amalgamation of commercial banks would alter the power balance in the money market.[95]

One of the challenges facing the BoE was keeping its influence over the money market through the bank rate to protect its small domestic reserves and to respond to fluctuations in the international payment system. The BoE started to borrow more intensely from the money market institutions against government securities or sold government consols (perpetual bonds) to put pressure on the market or the bank reserves. The Bank tried to avoid large increases in the bank rate and preferred frequent and small changes together with selling operations and changes in gold prices. The sterling was such a powerful instrument through its use in world trade that small changes in the bank rate could be enough to move other banks to sell their gold and secure the convertibility of the sterling.[96]

One of the most important groups of discounters in the English money market were the bill brokers. They worked as specialized operators who screened, secured and completed transactions. They did not compete with the commercial banks because they relied on them for their business. For the BoE, they functioned as instruments to support the money market, as long as they played by the Bank's rules. This was an interdependent relationship as the BoE needed the bill brokers to screen risks and the bill brokers needed the BoE for the liquidity of bills, especially because bill broking was a risky business were bad trades could lead to liquidity issues. This is a similar relationship as DNB maintained with commercial banks. However, bill brokers were far more unregulated than Dutch commercial banking and involved in riskier investments.[97]

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[94] Ibidem, pp. 141-145.
[95] Turner, *Banking in Crisis,* p. 169.
[96] Roberts, *The Bank of* England, pp. 58-60.
[97] Flandreau M. and S. Ugolini, 'Where it all began: lending of last resort and the e National Bank of Belgium and the quest for Bank of England during the Overend-Gurney panic of 1866' Norges Bank bicentenary project Working Paper No. 3. (Norges Bank, 2011), p. 153.

In England, the most commonly used way to raise funds was through bills of exchange. The measure of their credit was decided by the certainty of the paying of these bills on the date they are due. Bill broker firms were in business to make these estimates and borrow large sums from bankers by depositing the bills as security. The lender expected the bill broker to have expert knowledge and sizeable wealth. The banks had to make sure they did not discount bad bills and kept a good reserve. The bill broker had to pay interest on his loans and therefore had to invest the money in its reserves and not let it sit idle. The money was often repayable on demand and short notice, which was problematic if the bill broker invested his reserves. The commercial banks were the main depositors of the bill brokers, transferring a portion of their reserves to them. During a panic these banks would call for these reserves to be transferred back, creating a shortage for the bill brokers. This system not only increased the amount of profit to be gained from the bank reserves, but also the risks involved.[98] The bills of exchange were often abused because commercial banks made little distinction between the quality and quantity of the bills they discounted. This created speculative booms and financial crises in 1837, 1847 and 1857.[99]

This unregulated system of illiquid bill brokers providing credit is known as the 'shadow banking system' because of its unregulated nature and they are the prime receivers of aid from the BoE during financial crises.[100] Graph 1.5 visualizes how the average maturity of bills increased between 1864-1887, showing a willingness of the BoE to accommodate longer-term bills of exchange. Simultaneously the number of discounts at the BoE dropped. In 1864 the BoE possessed £ 42 million worth of assets, £ 9 million discounts and £ 10 million securities. In 1887 these were respectively, £ 51 million, £ 1 million and £ 15 million. This shows how the BoE eventually became the banker's bank and receded from discounting as the amalgamated commercial banks took over their role in discounting the bill brokers.[101]

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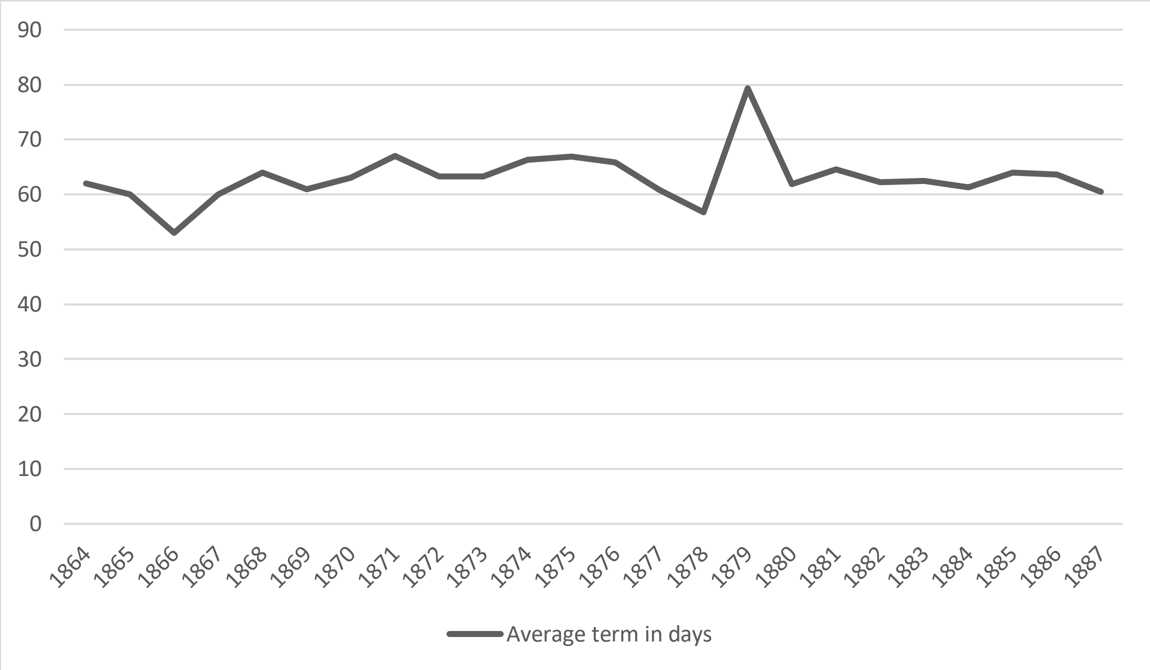
[98] Bagehot, *Lombard* Street, p. 299.
[99] Roberts, *The Bank of* England, p. 157.
[100] Bordo, *The Origins, History,* pp. 138-139.
[101] Anson, *Staff Working Paper*.

Graph 1.5

The average term of bills in days, 1864-1887



Source: M. Anson, D. Bholat, M. Kang, R. Thomas, *Staff Working Paper No. 691, The Bank of England as lender of last resort: new historical evidence from daily transactional data* (2017), http://www.bankofengland.co.uk/research/Documents/workingpapers/2017/swp691.pdf

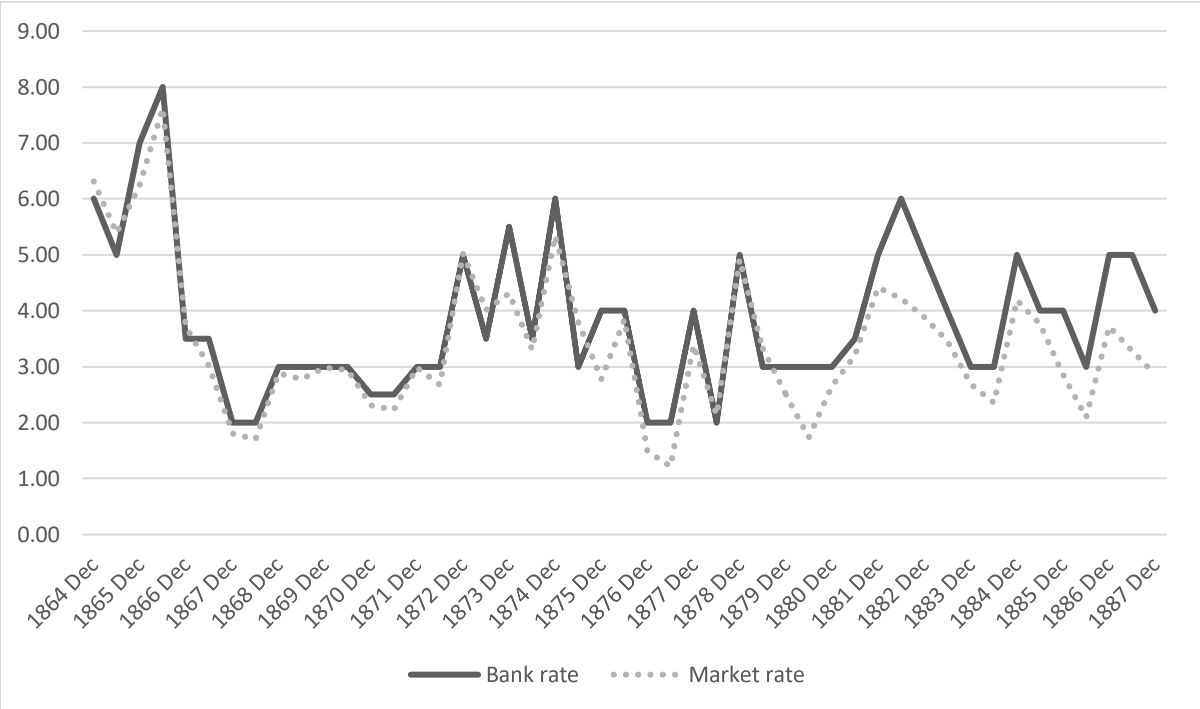
The bill brokers are competitors of the Bank in the discount market because they give higher rates than the BoE and therefore attract more business. However, the BoE possesses the final reserve and therefore had to support the money market and the bill brokers in times of panic. To lessen this independence of 'their rivals' the BoE introduced new regulations in 1858. From that moment the bill brokers could only receive help from the reserve at certain times in the year when the amount of public money was large and at other times throughout the year advances from the reserve were exceptional.[102] The Bank wanted to make the bill brokers less depend on the BoE as a lender of last resort by forcing them to create their own reserves. However, when the bill brokers want to increase their reserves during crises, they would liquidate their bills and securities, thus forcing the BoE in a lender of last resort position regardless.[103] Because of the suspension of discounting bill brokers at the BoE, the Bank lost

[102] Bagehot, *Lombard Street,* p. 299.
[103] E.M. Ogden, 'The development of the role of the Bank of England as a Lender of Last Resort, 1870-1914', Ph.D. City University London (1988), p. 121.

its influence over market rates, bullion reserves and capital flows.[104] This regulation failed as well as the Bank advances to the bill brokers at every period of panic. If they do so the pressure on the Bank is alleviated.[105]

Graph 1.6

The BoE rate and the market rate at the end of each year, 1864-1887



Source: M. Anson, D. Bholat, M. Kang, R. Thomas, *Staff Working Paper No. 691, The Bank of England as lender of last resort: new historical evidence from daily transactional data* (2017), http://www.bankofengland.co.uk/research/Documents/workingpapers/2017/swp691.pdf

Regarding its lending policy, the BoE lend freely on good collateral during crises. Between 1864 and 1887 it started to nurse problematic banks back to health, to bail them out, organized private sector schemes and facilitated the takeover of failing banks.[106] The fact that bill brokers did their business with money that could be demanded on short notice while holding almost no reserves themselves was worrisome to a lender of last resort. The BoE had unwillingly accepted this part of the banking system and acts accordingly. Furthermore, this

[104] Roberts, *The Bank of England,* p. 159.
[105] Bagehot, *Lombard* Street, pp. 300-301.
[106] Turner, *Banking in* Crisis, p. 154.

disconnection from the discount market and the growth of the commercial banks led the Bank rate to become ineffective. During the Baring Crisis in 1890, the Bank raised its rate to 6 per cent while the commercial banks stayed at 4.5 per cent, as shown in Graph 1.6. The Bank, therefore, decided to keep its rate close to the market rate but using a slight premium and conducting open market operations if it wanted to convince the commercial banks to follow its rate. After 1890 the governors of the Bank intentionally developed personal ties with the discount houses and commercial banks so they could use moral persuasion to change their rate.[107] In 1890 the right to discount at the BoE was restored to the bill brokers to make its connections to the money market stronger so it could make better use of the bank rate to manage the gold standard and its own reserves.[108] The Bank did not possess a large number of liquid bills, which made it more difficult to control the money market. Therefore, its discount rate is the most effective tool for control over the money market.[109]

So, why did the BoE decide to allow bill brokers to discount at the Bank again in 1890 after the suspension of 1858? An explanation is that the 'bad' discount houses with risky investments, such as Overend, Gurney & Co., had been filtered out of the system and a few leading firms remained: Alexanders, the National Discount Company and the Union Discount Company.[110] The number of discounters in the City had receded from 450 in 1840 to 106 in 1888. Furthermore, the BoE had shown that it was willing to save discount houses in need if they were still 'saveable'.[111] The Bank re-established its relationship with the leading discount houses, but the interdependent relationship had ceased to exist.[112]

4.4 Comparing the English and Dutch systems

The institutional equilibria of the English and Dutch money markets differed in many ways. The large number of securities held by the Dutch public meant that DNB function in the money market was more inclined towards facilitating the needs of the stock traders through the prolongation system rather than industry or trade. Dutch capital was abundant and

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[107] Roberts, *The Bank of* England pp. 159-160.
[108] Ogden, 'The development', p. 139.
[109] Andréadès¸ History, pp. 312-319.
[110] Clapham, *The Bank*, ii, pp. 150-160.
[111] D. Kynaston, *Till Time's Last Sand: A History of the Bank of England 1694-2013* (London, 2017), p. 159.
[112] Clapham, *The Bank*, ii, pp. 321-322.

mobile and therefore few citizens discounted at DNB, even seeing it as a sign of bad financial health because the traditional networks would not lend you any credit.[113] The lack of investment opportunities at home and low-interest rates for government bonds meant that ƒ 2 billion in the 1880s, or 22% of national income and ƒ 2.4 billion in 1895, or 28% of national income was flowing abroad. The few investment opportunities at home, such as the railways, were able to mobilize enough capital for large projects through syndicates of Dutch bankers, underwriters and brokers.[114] Furthermore, Dutch investors were change-averse and most credit associations that sought large investment opportunities failed in the Netherlands between 1850-60.[115] The Netherlands lacked an industrious economy and maintained a traditional banking sector based on family networks, the prolongation market and self-financing. The amalgamation of private banks occurred only in the twentieth century in the Netherlands.

England experiences an early amalgamation process of private banks into large commercial banks, an industrious economy, a modern banking sector and specialized deposit banks. Credit was not easily available through small firms, as they were often illiquid. The commercial banks focused on long term loans for trade and industry. The BoE had to compete with large commercial banks in its control over the discount rate in the money market. These were many times larger than those in the Netherlands. The three largest British banks in 1875 in terms of deposit liabilities were: London and Westminster (£28.8 million), National Provincial (£25 million) and London & Country (£ 23.6 million).[116] The BoE' assets in 1875 were £44 million.[117] The three largest Dutch banks in 1875 were: Amsterdamsche Bank (ƒ 7 million), Kas-Vereeniging (ƒ 8 million) and the Rotterdamsche Bank (ƒ 9 million).[118] DNB's total assets in 1875 were ƒ 216 million.[119] Considering the exchange rate of the pound sterling in 1875 was £ 1 for ƒ 11.83, the mentioned British banks contained respectively ƒ 341 million, ƒ 296 million, ƒ 279 million and ƒ 520 million.[120] Since the population of England was only 6 times larger than

[113] M. 'T Hart, J. Jonker and J.L. Van Zanden, eds., *A Financial History of the Netherlands* (Cambridge, 1997), p. 105.
[114] 'T Hart, *A Financial* History, p. 113.
[115] Ibidem, p. 118.
[116] M. Collins and M. Baker, *Commercial Banks and Industrial Finance in England and Wales, 1860-1913* (Oxford, 2004) 109.
[117] Anson, *Staff Working Paper*.
[118] De Jong, *Geschiedenis*, iii, p. 651.
[119] Ibidem, pp. 546-547.
[120] Ibidem, p. 626.

the Dutch population the conclusion is that the commercial banks in England were much larger than their Dutch counterparts. It is clear that English commercial banking dwarfed Dutch commercial banking and DNB towered above the other commercial banks in its size.

DNB's goal was to keep the bank rate as low as possible. It only increases the rate during an outflow of gold to preserve the value of the national currency. The basic rate discounting bills at the BoE and DNB is portrayed in Table 1.4.[121] Until 1870 the DNB rate was functionally a barometer for businesses rather than an effective tool for the supply and demand of credit. The money market possessed enough holdings to resist shocks and prevented the Bank to become an effective lender of last resort.[122] Furthermore, the use of promissory notes by DNB made the bank rate even less effective than it had been made by the growing influence of commercial banking rates. Many of the promissory notes were long-term which meant that they were illiquid and could not be quickly cashed-out or bought to influence the market rate.[123]

The discount rate of the BoE was high in 1864 and then lowered considerably. It was the lowest rate in Europe, except for the Bank of France. It decreased from 1866 until 1868 and stayed mostly around 3 per cent the following decades, as depicted in Table 1.4. When the market rate was high the bank discounted and when it was low it did not. From 1872 on the market rate has been less than the Bank's rate.[124] The BoE's rate was much more unstable than the DNB rate. The BoE changed its rate 207 times between 1864-1887[125]. DNB changed it 103 times in this period.[126] The difference was especially evident between 1875-89 when DNB changed its rate only 28 times and the BoE 95 times.[127] The BoE was the world's financer and had to work with low reserves as most of its liquid assets were located abroad. When a crisis loomed, the Bank would increase its rate to attract capital. The Dutch capital market was less sensitive to foreign influences. DNB conducted a more careful interest policy than

[121] Kymmel, *De geschiedenis*, ii-b, pp. 358-359.
[122] Jonker, *Merchants, Bankers, Middlemen*, p. 184.
[123] J. B.P. Jonker, 'Between private responsibility and public duty. The origins of bank monitoring in the Netherlands, 1860–1930' *Financial History Review* 3:2 (2008), p. 140.
[124] Andréadès¸ *History*, p. 313.
[125] Clapham, *The* Bank, ii, pp. 430-431.
[126] De Jong, *Geschiedenis*, iii, pp. 537-540.
[127] De Jong, *Geschiedenis van de*, ii, p. 400.

DNB.[128] Furthermore, because the trade in gold was free in England, they could not use the export charge for gold but had to use the discount rate.[129]

Table 1.4

Interest rate for discounting bills by De Nederlandsche Bank and the Bank of England

Calendar	De Nederlandsche Bank	Bank of England
1864	5.35	7.35
1865	3.99	4.77
1866	5.94	6.94
1867	3.05	2.54
1868	2.66	2.10
1869	3.50	3.20
1870	4.30	3.10
1871	3.28	2.90
1872	3.22	4.10
1873	4.84	4.85
1874	3.63	3.72
1875	3.32	3.23
1876	3.00	2.60
1877	3.00	2.91
1878	3.45	3.78
1879	3.17	2.51
1880	3.00	2.76
1881	3.27	3.49
1882	4.49	4.15
1883	4.12	3.57
1884	3.18	2.96
1885	2.70	2.92
1886	2.50	3.06
1887	2.50	3.34
1888	2.50	3.31

Source: Source: A.M. De Jong, *Geschiedenis van de Nederlandsche Bank*, dl. 3 (Amsterdam 1967)

Because central banks are created to enhance financial stability during periods of crises they are often bequeathed with authority to enact regulatory measures. The success of these measures is often reliant on personal ties between the Bank's Board of Governors and the directors of private banks to enact persuasion. The BoE made no formal attempt to regulate

[128] Ibidem, p. 398.
[129] Andréadès¸ *History,* p. 313.

the liquidity ratio of English banks before 1939.[130] The banks accepted the BoE's leadership as long as it was discouraging the accession of new banks in the market and helped to establish an 'interest-rate cartel'. This win-win situation would create lower interest rates that helped the Bank to finance the government debt cheaply.[131]

DNB on the other hand had a profound regulatory role and therefore established strict rules on which financial instruments it would accept. In many instances commercial banks wanted to change DNB policy in regards to the acceptance of foreign securities or long-term credit, but DNB would not comply with their requests. Banks were required by DNB to ask the Bank for admissibility to access its discount features which DNB could refuse if the Bank disapproved their financial situation or management structure. The banks that were permitted to discount at DNB had to post regular reports on their finances. The Bank did not have any formal competence to supervise the banking sector and the divergent interest between DNB and the commercial banks, who wanted to earn profit without large capital reserves, meant that regular consults with the banks were necessary to achieve healthy growth in the banking sector.[132] To exclude undesired paper from its discount portfolio DNB set up some rules for the commercial banks. First, the continuous supply of credit was made dependent on, not only the capital of credit drawing shareholders of the bank, but also on non-credit drawing shareholders. This supply of credit was not allowed to be fifteen times larger than the credit of the non-credit drawing shareholders. Second, the banks had to submit monthly statistics to ensure DNB that this rule was followed.[133]

There was no formal control by commercial banks over DNB's structure or policy. The banking sector did not have its own organisation before 1914 or owned substantial stocks within DNB. Yet informally, the interplay between the private finance market and central banking did cause DNB to change some of its policy. I will give three examples. First, one of the Bank's members of the Board of Governors was directly appointed by its shareholders from the banking sector. Second, DNB changed its interest policy on loans after complaints from commercial banks. DNB loans had a duration of three months and if the banks wanted to terminate the loan earlier they still had to pay at least 30 days' worth of interest. After

[130] Turner, *Banking in* Crisis, p. 180.
[131] Ibidem, pp. 173-174.
[132] Kymmel, *De geschiedenis*, ii-b, p. 370.
[133] De Jong, *Geschiedenis van de*, ii, p. 187.

pressure from banks, DNB lowered the number of days to 8.[134] Third, DNB did not want to support the long-term promissory notes because it did not want to finance fixed capital requirements. However, the efforts to eradicate the promissory notes were unsuccessful. The Bank realized that to intervene too hard would hurt both the commercial banks and DNB itself.[135] Both the large commercial banks and DNB did not write about their relationship in detail in their annual reports.[136]

There were various attempts by private finance institutions to influence the BoE's policy. One of the most well-known is the attempt by the discount house Overend, Gurney & Co. to strongarm the BoE to reopen discounting facilities to the bill brokers after the 1858 suspension. Overend, Gurney & Co. withdrew £ 1.6 million banknotes from the Bank and threatening to withdraw up to seven million if the Bank did not comply (which constitute the entire BoE reserve). Eventually, they regretted their decision and returned the money, with the notes cut in half.[137] When in 1866 Overend, Gurney & Co. failed because of bad investments, speculation and overtrading that had led to illiquidity and debts, they caused an international financial crisis. The BoE decided to let Overend, Gurney & Co. fail, while other banks could still count on help from the BoE and the Bank quickly poured its reserves into the banks that were in trouble. The different approach to Overend and other banks was a clear signal to the City of London that the BoE was not to be messed with.[138]

The behaviour of the BoE as a lender of last resort was very different from DNB. The BoE took more drastic measures and assumed a role as the leader of operations to save large banks, such as the Barings Crisis in 1890 when the Bank obtained the guarantees for the Barings to survive and underwriting investments.[139] On the other hand, DNB took a more cooperative role, such as in the Pincoff-Affair in 1879 and the sugar crisis of 1884 where committees of representatives of commercial banks mainly rescued failing banks.[140] When the BoE decided to introduce discounting facilities to bill brokers in 1890 it was out of a desire

[134] Kymmel, *De geschiedenis*, ii-b, p. 366.
[135] Ibidem, p. 374.
[136] Ibidem, p. 352.
[137] Kynaston, *The Bank of England*, pp. 155-158.
[138] Ibidem, pp. 158-159.
[139] Ibidem, pp. 60-61.
[140] Kymmel, *De geschiedenis*, ii-b, pp. 330-340.

to strengthen its bank rate, initially with short-term bills of 15 days and later on longer terms, so it could make better use of the bank rate to manage the gold standard and its reserves.[141]

[141] Ogden, 'The development', p. 139.

V. Conclusion

This thesis has answered the question to what degree discount houses and commercial banks on the private money market in Great-Britain and the Netherlands have contributed to the changing structure of their central banks between the transitional phase of 1864 and 1887. Using the functional approach with the statistical data on DNB provided by De Jong's work and the data on the BoE provided by Anson, M., D. Bholat, M. Kang, R. Thomas staff working paper I was able to come to some conclusions about the relationship between public and private finance. This work explained why central banks developed differently across countries and how the functional relationship between public and private institutions in the money market is an explanatory factor. It adds a new understanding to the central banking literature about how different institutional equilibria work in practice and how they cause central banks to change their structure and policies. It also explains a *raison d'être* of central banks, namely, to facilitate the discounting function to illiquid bill brokers and commercial banks from a centralized private-public institution. My thesis is a valuable addition to the recent functionalist literature of Ugolini and Uittenbogaard by offering an in-depth analysis of the discount function of the money market in a comparison between the BoE and DNB for the second half of the twentieth century.

Through my research I came to two conclusions about DNB and the BoE. First, in the Netherlands the prolongation market pushed DNB's discounting facilities out of Amsterdam and Rotterdam which made the Bank reorientate towards provincial banking, where no large commercial banks were able to establish themselves. This meant that DNB changed from discounting short-term bills towards long-term promissory notes because of their popularity in the provinces. This went against the obligations of its charter and the desires of the Board of Governors, but the Bank would still accept these promissory notes. DNB achieved a structure and policy change because of a shift in the institutional equilibrium of the money market's discount function. Second, in England the central bank severed ties with the bill brokers, who could continue their business with the large commercial banks in London. During financial crises, the BoE was willing to act as a lender of last resort to the bill brokers. The BoE had to compete with large commercial banks and discount houses that had absorbed the smaller private banks in the country through an amalgamation process. This development worsened effectives of the bank rate in the money market which led the BoE to reintroduce discounting these facilities in 1890.

The findings from this thesis help to understand how public and private finance work in tandem in order to fulfill money market functions. Differences across countries in the structure of their money markets are explanatory factors in explaining the differences of their central banking structures and policy. I would have liked to have taken a more detailed look at the nature of English investments during the second half of the nineteenth century and find the reasons why English citizens were more inclined towards speculation and risky investments than Dutch citizens. This would give a better perception on why the BoE decided to exclude the bill brokers from its discounting facilities in 1858 and why id decided to reintroduce these facilities in 1890. This research would also have to analyze documents of the Bank's Board of Governance meetings to explain how the governors of the Bank perceived their ability to influence the institutional equilibrium of the money market. There is an issue with the sources, as many commercial banks did not publish their statistics before the 1870s and the central banks kept few records about their relationship with the discount houses and commercial banks.

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